Modernizing Microfinance in Nepal: Laying a Foundation for Future Prosperity with Nutanix HCI

by Prakash Raj Sharma

In Nepal, many microfinance institutions don't use digital devices and don't offer digital services to their clients. But Laxmi Laghubitta Bittiya Sanstha Limited (LxLB), the microfinance subsidiary of Laxmi Bank, wanted to pursue a different path.

I'm the CEO at LxLB, and our goal is to pioneer microfinance and improve the quality of life for Nepal's economically disadvantaged people. We do this through inclusive and sustainable microfinance services. LxLB has operated since 2012, and have 73 branches (including Head Office) across 52 of Nepal's 77 districts. We are the first microfinance institution to be registered as a subsidiary of a commercial bank in Nepal. Our clients are predominantly women with large families, few (if any) assets, and an entrepreneurial spirit.

> **Becoming a technology-driven microfinance institution means laying a strong digital foundation. #NutanixStories**

One of the ways we felt we could serve these communities better was by digitizing our services. This would allow us to scale our services, make loans more affordable, and open more branches across Nepal. Throughout the world, banking is modernizing at an increasing pace, but that hasn't necessarily been the case for microfinance institutions—and LxLB was no exception.

We had a clear vision of what we wanted to achieve, but we also had a serious problem: Our traditional infrastructure was holding us back.

A Fragmented and Disconnected Architecture

The core banking solution we had since the beginning was developed inhouse, and we used traditional, tower-based servers for our architecture with manual RAID concept. One of our biggest challenges was that everything ran on its own separate server—from our emails to our information management system (IMS), to our Microsoft SQL database. These multiple servers made managing the infrastructure a

challenge. We had problems managing HDD, RAM, and I/O speed which directly impacted performance.

When it came to email, it was unreliable. Sometimes the wrong person got the wrong email, and other times, important messages weren't delivered. And from a data security perspective, we wanted to move our email hosting inhouse, but it wasn't possible with our setup.

Our old architecture server capacity was limited—we had almost no rack space left and we had no redundancy in place. We considered a data center (DC) backup, but a DC disaster recovery (DR) setup was never properly implemented. We also had a new central banking system (CBS) being built, requiring new, reliable hardware to support it.

Getting Clear on How to Digitize Our Systems

We are a growing institution with 73 offices, but with our limited capacity, it became increasingly difficult to open a new branch since it would take a lot of work to spin up new virtual machines (VMs). We didn't have the in-house maintenance support to manage our infrastructure, and it was challenging to manage VM to VM traffic segmentation.

To build a digitized system that would support our new CBS, we also needed updated and upgraded hardware. Our legacy hardware was so outdated that we struggled with maximum latency downtime and maintenance. We needed a solution that would be compatible with digital devices and applications, such as tablets and mobile banking. We also needed to be able to configure our ATMs with Laxmi Bank to improve our client experience.

We couldn't spend more time, power, and other resources on running our old hardware and outdated software. So we decided to explore a new Hyper Converged Infrastructure (HCI) solution.

A Different Option: Seeking a Modern Digital Infrastructure

Our Chairperson, Jiwan Limbu, who is also CTO of Laxmi Bank, suggested that we move over to [Nutanix](#) HCI in the summer of 2019. We reached out to our local [Nutanix](#) vendor, Digital Network Solution ([DNS](#)), in Kathmandu and began discussions about our needs and what they could deliver.

> **With HCI, don't just consider upfront costs. Look at the total cost of ownership. #NutanixStories**

They sent us a quote for the new system, and while the upfront cost seemed a little high at first, the total cost of ownership— including support for three years as well as maintenance costs—was lower than our old infrastructure. It also quickly became clear that Nutanix would be easier to manage and

system performance would be improved.

DNS implemented a solution based on a two-datacenter active/standby design. DNS deployed three NX1065 nodes at each site to host around 100 workloads in failover mode. We also leveraged Nutanix's data Protection Domain (PD).

Above all, the most important aspect of this new infrastructure was building a solid foundation for our continued modernization efforts and our new CBS with less latency and high performance.

A Speedy Rollout and a Reliable New HCI

The rollout took about three to four weeks to complete, with DNS engineers coming into our office to install and configure our system.

We moved some core workloads over to Nutanix, starting with email and the office intranet. Now we have our own email server running on Nutanix, which works perfectly. We receive emails on time and they get delivered to the intended people. It also helped solve our issue with email security since we can host it internally without any resource utilization problems.

Our IMS, which is a critical application, was also moved over to Nutanix. Our major update was our CBS, which took a little longer to launch. Ensuring that all our core systems were operational, backed up, secure, and efficient meant that our entire infrastructure runs smoothly on Nutanix HCI. We can now shift our efforts to the CBS application itself, since we know we'll likely never have a hardware issue again until we change our requirements.

We went from a disorganized and inefficient mix of servers to one solution—and we're delighted that solution is Nutanix.

A One-Click Operation: Our New Efficiency with Nutanix

With Nutanix, our consolidated infrastructure is now more reliable with improved app performance, and the new app rollout time was significantly reduced with this new system. It's also much less of a hassle for our IT support engineers to manage the infrastructure. Upgrades are easier and faster—it's a one-click operation. Our IT staff's productivity has improved now that the system works the way that it should.

The data availability across the data center is protected using Nutanix Protection Domain, and our DC-DR drill has become faster and easier to protect data, and recover from outrages.

The process for opening up new branches is now rapid. We can add as many VMs for the different branch offices as we need. Instead of a cumbersome endeavor, this is now a simple five-minute task.

Now that scalability is no longer an issue, opening up new branches won't be a concern for the next five or six years with our existing HCI architecture. We're in a favorable position to continue to offer microfinance opportunities to the people who need it most.

Throughout this, Digital Network Solution has provided tremendous assistance. Our chairman Jiwan Limbu said, "Digital Network Solution was totally professional in the way it supported the migration. Its expertise in Nutanix was clear as was its commitment to delivering our transformation goals."

Laying a Digital Foundation for Future Prosperity

At LxLB, we are proud to be the first Nepali microfinance institution to use Nutanix.

We are now visible in Nepal's microfinance industry as a technology-driven microfinance institution. We were the first institution in Nepal to offer services using centralized, web-based software, but now other microfinance institutions are starting to catch up and offer similar services with similar technology. Our objective is to give our clients a taste of what it's like engaging the services of established commercial banks, and we're doing just that.

Our next phase is further digitizing the ATM experience. As LxLB has established new branch offices, we'll use digital devices and alternative delivery channels in hard-to-reach areas to increase access and facilities. That means the cost of operations and the client's cost of borrowing will decrease because they will have access to their banking right at their doorstep. That's why laying a digital foundation has been so crucial to get right—without the right hardware and software, our clients lose out on better banking experiences.

Even though there isn't yet widespread digitization within Nepal's microfinance industry, we're confident in our choice to embrace digitization and continue to modernize our systems. We now, finally, have a solid foundation on which we can build a better future. And that is ultimately what we want for our clients, too.